

BIBLIOGRAPHICAL NOTICE.

Contribuições á Paleontologia do Brazil. (With the original in English.) By CHARLES A. WHITE, M.D., Palæontologist to the Geological Survey of the United States, &c.—*Archivos do Museu Nacional do Rio Janeiro*, vol. vii. 4to, National Press, Rio Janeiro, 1887. Pp. 1–273, with Index, pp. 1–v, and 28 plates.

THESE contributions to the Palæontology of Brazil have resulted from a study of Cretaceous Invertebrate Fossils collected by the Brazilian Geological Survey under the direction of the late Prof. Ch. Fred. Hartt, and preserved by the care of Mr. Orville A. Derby, who accepted the position of Director of the Geological Section of the Brazilian National Museum, for the purpose of preserving these results of the Survey, which have now been confided to Dr. White, by the Director of the Brazilian National Museum at Rio de Janeiro, for publication.

After a warm recognition of the enlightened support and encouragement given to science, and to the Geological Survey in particular, by His Imperial Majesty Dom Pedro II., Dr. White proceeds to a careful bibliography of books and memoirs illustrative of South-American Mesozoic Invertebrata, from 1839 to 1881.

The fossils sent to Dr. White for description and illustration comprise Conchifera, Gasteropoda, Cephalopoda, one Polyzoon, and Echinodermata from the marine strata, and the Molluscan fauna of the freshwater Bahia group. These are described and figured in this order.

At pp. 7–14 Mr. O. A. Derby supplies, chiefly from his own personal observations, an account of the strata from which these fossils were obtained. The marine fossils here described were collected from beds in detached basins, lying on probably Palæozoic rocks, along the coast from the mouth of the Amazon to that of the Rio Reale, about lat. 12° S., namely the basins of Para, Pernambuco, and Sergipe. Further south similarly situated freshwater basins occur along the coast of the province of Bahia, to about lat. 18° S., namely those of Bahia and of Southern Bahia or the Arolhos Islands.

Although some among the marine fossils have a Jurassic aspect, yet all are integral parts of a true Cretaceous fauna, differing much from any others, except (to some extent) that of Southern India and that of Gosau in the Tyrol. The homotaxial relationship of these fossils is carefully noted by Dr. White. Very many of the specimens are casts and not well preserved; but the Author, desirous of making them useful to geologists, has sedulously worked out their zoological characters as far as possible, and has defined:—82 Conchifera (including 58 new species, besides 5 which may be generically, but not specifically determined); 91 Gasteropoda (including 77 new species and 7 not specifically named); 13 Cephalopoda (namely 11 Ammonites, 8 new species, with 1 *Helicoceras*,

sp. n., and 1 *Nautilus*); and 15 Echinodermata (of Cidaridæ 10 new species and a fragment; of Galeritidæ 2 new species; of Cassidulidæ 2 new species; of Spatangidæ 2 species, 1 of them new; and one fragment of an Asterid).

To the 6 species of Mollusks already known from the freshwater group 5 species are now added, and all but one of them are figured together on plate xxvi.

Prof. E. D. Cope has compared the Vertebrate fossils from the Pernambuco basin with those of the Fox-hill group of the Western United States, and those of the Bahia freshwater group with the fossils of the Laramie group of the same region, these two being the upper members of the Cretaceous series of North America.

Mr. Derby mentions at p. 8 that, from about the latitude of Bahia northward to the coast near the city of Maranhã, the high interior plateau, against which the fossiliferous strata of the coast abut, is overlain by a thick series of sandstones and shales, which at several points have yielded many fish-remains, regarded as of Cretaceous age by Agassiz, but Jurassic by Newberry and Cope. Presumably older than the coast basins, and divided from them by an uprise of the land, should the plateau-beds prove to be of Cretaceous age, those on the coast will be referred to the middle or later part of that age.

The exact distribution of the marine fossils described by Dr. A. C. White is exhibited in an extensive and valuable table (with an explanation) by Mr. O. A. Derby at pages 264-271, "so as to facilitate the examination of the question as to whether the fauna of any of these localities (27 altogether) presents differences that indicate distinct geological horizons, or only such as might be expected from differences in geographical position, in the character of the rocks, and in the degree of completeness in which the fauna of each locality is represented in the collections."

The descriptions of the fossils (pp. 20-263) are enriched with Dr. White's wide experience of the varietal changes and migrational distribution of such organisms. The twenty-eight quarto lithographed plates give admirable representations of the specimens, whether perfect or otherwise, evidently with careful exactness; and with them and the elaborate descriptions we have a very valuable work of reference both for geologists interested in Brazil and for those who may be studying the Cretaceous formations in other parts of the world.

MISCELLANEOUS.

The Development of the Central Nervous System of the Pulmonata.

By Dr. FERD. SCHMIDT.

ALTHOUGH the development of the Gastropods, and of the Pulmonata in particular, has already often been the subject of close